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**RADIOACTIVITY
SURVEY DATA
in Japan**

**Part 2
= Dietary Materials =**

**NUMBER 79
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**National Institute of Radiological Sciences
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Number 79

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Environmental and Dietary Materials*

(Japan Chemical Analysis Center)

1. Collection and pretreatment of samples

(1) Rain and dry fallout

Rain and dry fallout was collected monthly on a sampling tray, approximately 5000 cm² in area, which was filled with water to a depth of 1 cm at the beginning of every month.

Strontium and cesium carrier solutions were added after the sample was filtered. The tray was washed with 5 ℓ of distilled water and the washing was combined to the filtrate.

The sample was passed through a cation exchange column (500 mL of Dowex 50W X8, 50 ~ 100 mesh, Na form) at a rate flow of 80 mL/min.

(2) Airborne dust

Airborne dust was collected by an electrostatic precipitator or a filter air sampler for every three months at a rate of more than 3000 m³ per month. The sampling was done 1 to 1.5 meters above the ground.

(3) Service water and freshwater

Service water, 100 ℓ each, was collected at the intake of the water-treatment plant and at the tap after water was left running for five minutes. Strontium and cesium carriers were added to the filtered water sample. The subsequent process was the same as that described in the section (1). Freshwater was treated in the same way as the service water.

(4) Soil

Soil was collected from the location in the spacious and flat area without past surface disturbance caused by duststorms, inflow and outflow due to precipitation, etc.. Any places located under trees in a forest, in a stony area or inside of river banks were avoided. Soil was taken from two layers of different depths, 0-5cm and 5-20cm. The soil lumps were crushed by hands and dried in a drying oven regulated 105 °C. The soil was then passed through a 2 mm sieve to remove plant roots and pebbles.

(5) Sea water

Sea water was collected at the fixed stations where

the effect of terrestrial fresh water from rivers was expected to be negligibly small. A special consideration was also given to weather conditions. The sampling was carried out when there was no rainfall for the last few days. To prevent contamination, water samples were collected at the bow of a sampling boat just before she stood still by scooping surface water using a polyethylene bucket. Immediately after the collection, the samples were acidified to a pH lower than 3 by adding concentrated hydrochloric acid in a ratio of 1 mL to 1 ℓ of sea water, and then stored in 20 ℓ polyethylene containers. The sampling equipments as well as containers were thoroughly rinsed with dilute hydrochloric acid and then with distilled water before use. Two hundred milliliters of sea water was also collected at the same stations for the determination of chlorinity.

(6) Sea sediments

Sediment was collected in the same area as that for the sea water sample, taking the following criteria into account:

- The depth of water exceeds 1 m at low tide.
- No significant sedimental movement is observed in the vicinity of concern.
- Mud, silt and fine sand are preferable.

A conventional sediment sampling device was used for collecting the top few centimeters of surface sediment. Approximately 4kg of the sample in wet weight was spread on a stainless steel dish after removed of the pebbles, shells and other foreign materials, and dried in a drying oven regulated at 105 °C.

(7) Total diet

A full one day ordinary diet including three meals, water, tea and other in-between snacks for five persons was collected as a sample of "total diet". The sample in a large stainless steel pan was carbonized carefully by direct application of gas flame, and was transferred to a porcelain dish and then ashed at 450 °C in an electric muffle furnace.

(8) Rice

Polished rice was collected in producing districts at the harvest and in consuming areas when new crops were first put on sale. The sample was carbonized and ashed in a porcelain dish.

* Samples were sent to the Center from 32 contracted prefectures.

(9) Milk

Raw milk was collected in producing districts and commercial milk was purchased in consuming districts. Milk in a stainless steel pan or a porcelain dish was evaporated to dryness followed by carbonization and ashing.

(10) Vegetables

Spinach and Japanese radish were selected as the representatives for leaf vegetables and for non-starch roots, respectively. After removing soil, the edible part of vegetable sample was dried and carbonized in a stainless steel pan or a porcelain dish.

(11) Tea

Five hundred grams of manufactured green tea was collected, carbonized and ashed in a stainless steel pan or a porcelain dish.

(12) Fish, shellfish and seaweeds

a. Sea fish and freshwater fish

Fish was rinsed with water and blotted with a filter paper. Only the edible part was used in case of larger sized fish, and the whole part was used in case of smaller ones. Each sample was weighed and placed in a stainless steel pan or a porcelain dish. After carbonized, the sample was ashed in an electric muffle furnace.

b. Shellfish

Approximately 4 kg of shellfish including the shells was collected or purchased. After removing the shells, it was treated in the same way as that for the sea fish.

c. Seaweeds

Edible seaweeds were collected and rinsed with water to remove sand and other adhering matters on the surface. These were removed of excess water, weighed dried and ashed.

Table 1 shows details of sample collection.

Table 1 Details of sample collection

Sample	Frequency of sampling	Quantity of sample
=Environmental materials=		
(1) Rain and dry fallout		
1. For domestic program	monthly	
2. For WHO program	monthly	
(2) Airborne dust	quarterly	>3000 m ³ /month
(3) Service water and freshwater		
1. Service water (source water)	semiyearly	100 ℓ
2. Service water (tap water)	semiyearly	100 ℓ
3. Freshwater	yearly (fishing season)	100 ℓ
(4) Soil		
1. 0 ~ 5 cm	yearly	4 kg
2. 5 ~ 20cm	yearly	4 kg
(5) Sea water	yearly	40 ℓ
(6) Sea sediments	yearly	4 kg
=Dietary materials=		
(7) Total diet	semiyearly	daily amount for 5 persons
(8) Rice		
1. Producing districts	yearly (harvesting season)	5 kg (polished rice)
2. Consuming districts	yearly (harvesting season)	5 kg (polished rice)
(9) Milk		
1. Producing districts for WHO program	quarterly (February, May, August and November)	3 ℓ
2. Producing districts for domestic program	semiyearly (February and August)	3 ℓ

Sample	Frequency of sampling	Quantity of sample
3. Consuming districts	semiyearly (February and August)	3 ℓ
4. Powdered milk	semiyearly (April and October)	2 ~ 3 kg
(10) Vegetables		
1. Producing districts	yearly (harvesting season)	4 kg
2. Consuming districts	yearly (harvesting season)	4 kg
(11) Tea	yearly (the first harvesting season)	500g (manufactured tea)
(12) Fish, shellfish and seaweeds		
1. Sea fish	yearly (fishing season)	4 kg
2. Freshwater fish	yearly (fishing season)	4 kg
3. Shellfish	yearly (fishing season)	4 kg
4. Seaweeds	yearly (fishing season)	2 ~ 3 kg

2. Preparation of samples for analysis

(1) Rain, service water and freshwater

Strontium and cesium were eluted with hydrochloric acid from the cation exchange column. The residue of rain sample on the filter paper was ashed in an electric muffle furnace and the ash was dissolved in hydrochloric acid. The insoluble part was filtered and washed. The filtrate and the washings were combined to the previous eluate and used for radiochemical analysis.

(2) Soil and Sea sediment

Dried soil was crushed to smaller ones than 0.25 mm in size by a crusher. The sieved sample was ashed in an electric muffle furnace regulated at 450°C. The sample was then heated with hydrochloric acid, strontium and cesium carrier solutions and the mixture was heated. The insoluble constituent was filtered off and washed with water.

The dried sample was crushed to smaller ones than 0.25 mm by a crushing machine. The further preparation of the sample was the same as that described in the section 2-(2).

(3) Rice

The ashed sample was pulverized with a porcelain mortar and passed through a 0.35 mm sieve. The sieved sample to which both strontium and cesium carriers were added, was digested with nitric acid by heating.

After the sample was heated again with nitric acid to dryness, strontium and cesium were extracted with hydrochloric acid and water. The insoluble constituent was filtered and washed. The filtrate and washings were combined for subsequent radiochemical analysis.

(4) Airborne dust, diet, milk, vegetables, fish and shellfish, seaweeds, tea and others

These ashed samples were treated with the same procedure as that described in the section 2-(4).

3. Separation of strontium-90 and cesium-137

(1) Strontium-90

Sample solutions, prepared as in the foregoing sections 2-(1) through 2-(4), were neutralized with sodium hydroxide. After sodium carbonate was added, the precipitate of strontium and calcium carbonates was separated. The supernatant solution was retained for cesium-137 determination. The carbonates were dissolved in hydrochloric acid and strontium and calcium were precipitated as oxalates. The precipitate was dissolved in nitric acid and strontium was separated from calcium by successive fuming nitric acid separation. Iron scavenge was made after addition of ferric iron carrier followed by barium chromate separation after addition of barium carrier to remove radium, its daughters and lead. Strontium was recovered as carbonate, and the precipitate was dried and weighed to determine strontium recovery. The strontium carbonate was dissolved in hydrochloric acid and iron carrier was added. The solution was allowed to stand for two weeks for strontium-90 and yttrium-90 to attain equilibrium. Yttrium-90 was coprecipitated with ferric hydroxide and the precipitate was filtered off, washed and counted.

(2) Cesium-137

The supernatant separated from the strontium fraction was acidified with hydrochloric acid. While stirring, cesium was adsorbed on the ammonium molyb-

dophosphate added.

After filtered off and washed with hydrochloric acid the precipitate was dissolved in 2.5N sodium hydroxide solution. The solution was adjusted to pH 8.2 with hydrochloric acid and allowed to cool. Resultant molybdenum hydroxide which separated out in the solution, was filtered off and washed with water. EDTA was added to the filtrate and washings. Cesium and rubidium were adsorbed on a cation exchange column and cesium was separated from rubidium by eluting with hydrochloric acid.

The eluate was evaporated to dryness and was dissolved. The solution was filtered. Chloroplatinic acid was added to precipitate cesium. The precipitate was filtered onto a tared paper using a demountable filter and washed with water and then ethanol. After drying, the chemical yield of cesium was determined by weighing the precipitate. Cesium-137 radioactivity was measured for this precipitate.

4. Determination of stable strontium, calcium and potassium

A weighed amount of soil or sea sediment was heated in a electric muffle furnace at 450 °C and then

treated with hydrochloric acid for extraction. A weighed aliquot of ashed samples of total diet, vegetables, milk, fish, shellfish or seaweeds was digested with hydrofluoric acid and nitric acid.

The extract was made up to an appropriate volume with dilute hydrochloric acid. The sample solution was analyzed for calcium by titration with standard potassium permanganate solution after separating calcium as oxalate. Atomic absorption spectroscopy was applied when appropriate. Stable strontium and potassium were determined by atomic absorption and flame emission spectrometry, respectively.

5. Counting

After the radiochemical separation the mounted precipitates were counted for activity using low background beta counters normally for 60 to 90 min. Net sample counting rates were corrected for counter efficiency, recovery, self-absorption and decay to obtain the content of strontium-90 and cesium-137 per sample aliquot. From the results, concentrations of these nuclides in the original samples were calculated.

6. Results

(1) Strontium-90 and Cesium-137 in Total Diet (from Jun. 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (1): Strontium-90 and Cesium-137 in Total Diet

Location	Ash	Ca	K	⁹⁰ Sr		¹³⁷ Cs	
	(g/p·d)	(mg/p·d)	(mg/p·d)	(pCi/p·d)	S.U.	(pCi/p·d)	C.U.
June, 1986							
Fukushima, FUKUSHIMA	13.6	560	1350	1.9 ± 0.32	3.4 ± 0.58	1.9 ± 0.21	1.4 ± 0.16
Neyagawa, OSAKA	16.0	571	1780	1.7 ± 0.30	3.1 ± 0.52	2.7 ± 0.23	1.5 ± 0.13
Matsue, SHIMANE	20.5	987	2500	3.2 ± 0.40	3.2 ± 0.40	4.9 ± 0.33	2.0 ± 0.13
Nagasaki, NAGASAKI	17.4	546	1480	1.6 ± 0.30	2.9 ± 0.56	3.2 ± 0.26	2.2 ± 0.17
July, 1986							
Ishinomaki, MIYAGI	14.9	752	2020	1.5 ± 0.32	2.0 ± 0.43	5.3 ± 0.35	2.6 ± 0.17
Naha, OKINAWA	15.0	704	1800	1.6 ± 0.35	2.3 ± 0.49	2.5 ± 0.25	1.4 ± 0.14
August, 1986							
Hiroshima, HIROSHIMA	11.0	636	1300	1.6 ± 0.26	2.5 ± 0.41	2.2 ± 0.19	1.7 ± 0.15
November, 1986							
Ishinomaki, MIYAGI	16.6	542	2180	2.6 ± 0.32	4.8 ± 0.59	6.2 ± 0.38	2.9 ± 0.17
Akita, AKITA	14.7	548	1770	2.9 ± 0.36	5.3 ± 0.65	13 ± 0.6	7.4 ± 0.31
Kanazawa, ISHIKAWA	18.4	607	2530	4.2 ± 0.40	6.9 ± 0.65	7.0 ± 0.41	2.7 ± 0.16
Fukui, FUKUI	12.8	675	1760	2.3 ± 0.25	3.4 ± 0.38	1.9 ± 0.21	1.1 ± 0.12
Shizuoka, SHIZUOKA	17.9	738	2190	1.6 ± 0.31	2.2 ± 0.42	8.8 ± 0.44	4.0 ± 0.20
Nagoya, AICHI	15.8	787	2160	2.5 ± 0.30	3.1 ± 0.39	3.2 ± 0.28	1.5 ± 0.13
Wakayama, WAKAYAMA	11.7	447	1320	1.7 ± 0.29	3.8 ± 0.64	4.6 ± 0.30	3.4 ± 0.23
Fukube-mura, TOTTORI	15.7	558	2150	3.2 ± 0.37	5.7 ± 0.66	9.0 ± 0.42	4.2 ± 0.20
Matsue, SHIMANE	23.2	1280	3300	4.3 ± 0.42	3.4 ± 0.33	7.1 ± 0.42	2.2 ± 0.13
Okayama, OKAYAMA	16.5	483	2170	1.7 ± 0.31	3.6 ± 0.64	5.3 ± 0.34	2.4 ± 0.15
Matsuyama, EHIME	16.3	614	1820	1.5 ± 0.30	2.5 ± 0.49	3.3 ± 0.29	1.8 ± 0.16
Kochi, KOCHI	16.4	624	2310	2.6 ± 0.34	4.1 ± 0.54	7.6 ± 0.40	3.3 ± 0.17
Dazaifu, FUKUOKA	15.0	494	2200	2.4 ± 0.34	4.9 ± 0.69	3.0 ± 0.26	1.4 ± 0.12
Saga, SAGA	15.0	621	1790	1.4 ± 0.33	2.3 ± 0.53	2.6 ± 0.27	1.5 ± 0.15
December, 1986							
Sapporo, HOKKAIDO	17.4	641	2120	2.5 ± 0.34	3.9 ± 0.54	5.5 ± 0.35	2.6 ± 0.17
Yamagata, YAMAGATA	17.7	579	1680	1.9 ± 0.34	3.3 ± 0.59	4.7 ± 0.33	2.8 ± 0.20
Kakogawa, HYOGO	13.4	654	1860	2.5 ± 0.29	3.8 ± 0.44	3.9 ± 0.27	2.1 ± 0.15

(2)-1 Strontium-90 and Cesium-137 in Rice(producing districts)
(from Oct. 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (2)-1: Strontium-90 and Cesium-137 in Rice

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
October, 1986							
Mito, IBARAGI	0.749	0.055	0.861	0.4 ± 0.22	7 ± 4.0	7.6 ± 0.39	8.8 ± 0.45
Maki-machi, NIIGATA	0.569	0.041	0.910	0.2 ± 0.17	4 ± 4.2	0.7 ± 0.13	0.8 ± 0.14
Hodaka-machi, NAGANO	0.569	0.051	0.904	0.01 ± 0.14	0 ± 2.8	0.2 ± 0.08	0.2 ± 0.09
November, 1986							
Ishikari-machi, HOKKAIDO	0.805	0.049	1.14	0.2 ± 0.21	4 ± 4.2	0.7 ± 0.17	0.6 ± 0.15
Fukushima, FUKUSHIMA	0.623	0.053	0.978	0.3 ± 0.17	6 ± 3.2	0.5 ± 0.10	0.5 ± 0.11
December, 1986							
Tajiri-machi, MIYAGI	0.711	0.051	0.831	0.1 ± 0.19	2 ± 3.7	0.4 ± 0.14	0.4 ± 0.16
Chikushino, FUKUOKA	0.684	0.047	1.17	0.01 ± 0.22	0 ± 4.7	1.0 ± 0.21	0.8 ± 0.18

(2)-2 Strontium-90 and Cesium-137 in Rice(consuming districts)
(from Sep. 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (2)-2: Strontium-90 and Cesium-137 in Rice

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
September, 1986							
Kanazawa, ISHIKAWA	0.640	0.062	1.15	0.6 ± 0.27	10 ± 4.4	3.1 ± 0.29	2.7 ± 0.25
October, 1986							
Akita, AKITA	0.637	0.056	0.796	0.6 ± 0.25	10 ± 4.5	3.4 ± 0.29	4.3 ± 0.37
Mito, IBARAGI	0.683	0.047	0.853	0.0 ± 0.19	0 ± 4.0	2.0 ± 0.21	2.4 ± 0.25
Shinjuku, TOKYO	0.625	0.054	0.856	0.3 ± 0.24	6 ± 4.4	0.3 ± 0.18	0.4 ± 0.21
Niigata, NIIGATA	0.569	0.041	0.660	0.4 ± 0.18	9 ± 4.3	0.9 ± 0.14	1.4 ± 0.22
Wakayama, WAKAYAMA	0.624	0.058	0.898	0.4 ± 0.23	6 ± 3.9	1.0 ± 0.19	1.2 ± 0.21
Matsuyama, EHIME	0.607	0.058	0.837	0.1 ± 0.23	2 ± 4.0	0.7 ± 0.18	0.8 ± 0.21
November, 1986							
Sapporo, HOKKAIDO	0.627	0.032	0.537	0.3 ± 0.17	9 ± 5.4	0.4 ± 0.12	0.7 ± 0.22
Yokohama, KANAGAWA	0.650	0.042	0.760	0.2 ± 0.19	5 ± 4.5	2.9 ± 0.23	3.8 ± 0.31
Fukui, FUKUI	0.606	0.059	0.842	0.2 ± 0.23	4 ± 3.9	1.1 ± 0.20	1.3 ± 0.24
Shizuoka, SHIZUOKA	0.585	0.039	0.696	0.02 ± 0.22	8 ± 5.5	1.6 ± 0.19	2.4 ± 0.28
Kyoto, KYOTO	0.643	0.054	1.02	0.02 ± 0.21	0 ± 3.8	0.02 ± 0.11	0.02 ± 0.11
Osaka, OSAKA	0.0.7	0.065	0.987	0.2 ± 0.25	2 ± 3.8	1.8 ± 0.24	1.8 ± 0.24
Saga, SAGA	0.745	0.064	1.31	0.2 ± 0.28	3 ± 4.4	0.3 ± 0.19	0.2 ± 0.15
Kagoshima, KAGOSHIMA	0.537	0.039	0.955	2.02 ± 0.22	7 ± 5.7	9.4 ± 0.46	9.9 ± 0.48
December, 1986							
Yamagata, YAMAGATA	0.561	0.045	0.847	0.3 ± 0.21	8 ± 4.5	1.5 ± 0.18	1.8 ± 0.21
Nagoya, AICHI	0.679	0.057	0.964	0.0 ± 0.21	0 ± 3.6	0.4 ± 0.13	0.4 ± 0.14
Hiroshima, HIROSHIMA	0.534	0.041	0.672	0.1 ± 0.22	2 ± 5.2	2.5 ± 0.21	3.8 ± 0.32
Kochi, KOCHI	0.594	0.045	0.974	0.2 ± 0.25	4 ± 5.6	1.4 ± 0.18	1.5 ± 0.19
Kasuga, FUKUOKA	0.599	0.045	1.06	0.02 ± 0.24	7 ± 5.4	0.6 ± 0.19	0.5 ± 0.18

(3)-1 Strontium-90 and Cesium-137 in Milk(producing districts for domestic program)
(from Aug. 1986 to Oct. 1986)

-continued from NO. 77 of this publication-

Table (3)-1: Strontium-90 and Cesium-137 in Milk

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(g/ℓ)	Ca(g/ℓ)	K(g/ℓ)	pCi/ℓ	S.U.	pCi/ℓ	C.U.
August, 1986							
Aomori, AOMORI	7.36	1.13	1.63	9.1±0.45	8.0±0.40	22 ±0.6	14 ±0.4
Mito, IBARAGI	7.39	1.08	1.66	1.0±0.25	0.9±0.23	7.1±0.36	4.3±0.22
Oshimizu-machi, ISHIKAWA	7.07	1.06	1.68	1.7±0.26	1.6±0.25	10 ±0.4	6.1±0.24
Mihara-machi, HYOGO	6.90	1.05	1.53	0.5±0.21	0.5±0.21	29 ±0.7	19 ±0.4
Matsuyama, EHIME	7.34	1.08	1.48	0.8±0.27	0.7±0.25	2.1±0.29	1.4±0.20
October, 1986							
Yamato-machi, SAGA	7.37	1.17	1.52	1.3±0.25	1.1±0.22	2.3±0.20	1.5±0.13

(3)-2 Strontium-90 and Cesium-137 in Milk(producing districts for WHO program)
(from Apr. 1986 to Nov. 1986)

-continued from NO. 77 of this publication-

Table (3)-2: Strontium-90 and Cesium-137 in Milk

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(g/ℓ)	Ca(g/ℓ)	K(g/ℓ)	pCi/ℓ	S.U.	pCi/ℓ	C.U.
April, 1986							
Yakumo-mura, SHIMANE	7.23	1.31	1.55	1.2 ± 0.24	1.0 ± 0.18	1.7 ± 0.22	1.1 ± 0.14
June, 1986							
Yakumo-mura, SHIMANE	7.33	1.15	1.54	2.9 ± 0.31	2.5 ± 0.27	17 ± 0.5	11 ± 0.3
August, 1986							
Sapporo, HOKKAIDO	7.37	1.23	1.54	1.7 ± 0.26	1.4 ± 0.21	9.1 ± 0.39	5.9 ± 0.25
Hachijo-Island, TOKYO	6.97	1.07	1.46	2.8 ± 0.28	2.6 ± 0.26	16 ± 0.5	11 ± 0.4
Nishikawa-machi, NIIGATA	7.52	1.03	1.76	1.5 ± 0.26	1.5 ± 0.25	4.5 ± 0.30	2.5 ± 0.17
Katsuyama, FUKUI	7.29	1.04	1.57	1.5 ± 0.26	1.5 ± 0.25	7.8 ± 0.38	5.0 ± 0.24
Nose-machi, OSAKA	7.62	1.14	1.66	0.4 ± 0.22	0.3 ± 0.19	2.3 ± 0.24	1.4 ± 0.14
Yakumo-mura, SHIMANE	7.32	1.11	1.73	1.4 ± 0.25	1.3 ± 0.23	5.4 ± 0.32	3.1 ± 0.18
Takamiya-machi, HIROSHIMA	6.68	0.998	1.38	0.9 ± 0.18	0.9 ± 0.18	5.8 ± 0.29	4.2 ± 0.21
Kochi, KOCHI	7.35	1.11	1.51	2.9 ± 0.29	2.6 ± 0.26	11 ± 0.4	7.5 ± 0.29
Fukuma-machi, FUKUOKA	7.07	0.953	1.71	0.9 ± 0.24	1.0 ± 0.25	7.7 ± 0.36	4.5 ± 0.21
Kajiki-machi, KAGOSHIMA	7.34	1.09	1.62	1.2 ± 0.24	1.1 ± 0.22	5.2 ± 0.32	3.2 ± 0.20
November, 1986							
Sapporo, HOKKAIDO	7.39	1.21	1.70	1.5 ± 0.22	1.2 ± 0.18	8.7 ± 0.37	5.1 ± 0.22
Hachijo-Island, TOKYO	7.78	1.32	1.57	4.8 ± 0.35	3.6 ± 0.26	34 ± 0.7	22 ± 0.5
Nishikawa-machi, NIIGATA	7.65	1.20	1.65	1.1 ± 0.24	1.0 ± 0.20	1.7 ± 0.21	1.0 ± 0.13
Katsuyama, FUKUI	7.31	1.14	1.47	1.3 ± 0.22	1.2 ± 0.19	18 ± 0.5	12 ± 0.3
Nose-machi, OSAKA	7.67	1.18	1.51	0.9 ± 0.23	0.7 ± 0.20	2.1 ± 0.23	1.4 ± 0.15
Takamiya-machi, HIROSHIMA	7.98	1.22	1.70	0.8 ± 0.26	0.6 ± 0.21	5.0 ± 0.35	3.0 ± 0.20
Kochi, KOCHI	7.46	1.13	1.61	1.7 ± 0.26	1.5 ± 0.23	2.8 ± 0.23	1.7 ± 0.14
Fukuma-machi, FUKUOKA	7.32	1.06	1.72	0.9 ± 0.24	0.8 ± 0.22	5.3 ± 0.29	3.1 ± 0.17
Kajiki-machi, KAGOSHIMA	7.50	1.16	1.58	1.0 ± 0.24	0.9 ± 0.20	2.3 ± 0.22	1.5 ± 0.14

(3)-3 Strontium-90 and Cesium-137 in Milk (consuming districts)
(from May 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (3)-3: Strontium-90 and Cesium-137 in Milk

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(g/ℓ)	Ca(g/ℓ)	K(g/ℓ)	pCi/ℓ	S.U.	pCi/ℓ	C.U.
May, 1986							
Sendai, MIYAGI	7.53	1.14	1.62	1.1 ± 0.23	0.9 ± 0.20	1.3 ± 0.21	0.8 ± 0.13
JULY, 1986							
Yokohama, KANAGAWA	6.91	1.10	1.48	0.4 ± 0.20	0.4 ± 0.18	8.6 ± 0.39	5.8 ± 0.26
August, 1986							
Sapporo, HOKKAIDO	7.19	1.13	1.51	2.3 ± 0.28	2.0 ± 0.25	11 ± 0.4	7.0 ± 0.28
Yamagata, YAMAGATA	7.00	1.05	1.52	1.3 ± 0.28	1.2 ± 0.27	18 ± 0.6	12 ± 0.4
Shinjuku, TOKYO	6.70	1.06	1.46	1.0 ± 0.21	0.9 ± 0.19	3.5 ± 0.25	2.4 ± 0.17
Niigata, NIIGATA	7.62	1.15	1.61	1.3 ± 0.26	1.1 ± 0.22	5.9 ± 0.34	3.7 ± 0.21
Fukui, FUKUI	6.42	0.972	1.37	2.3 ± 0.35	2.3 ± 0.36	6.5 ± 0.40	4.8 ± 0.29
Nagano, NAGANO	6.48	0.963	1.40	1.3 ± 0.22	1.3 ± 0.23	2.1 ± 0.19	1.5 ± 0.14
Shizuoka, SHIZUOKA	7.38	1.15	1.61	1.0 ± 0.24	0.8 ± 0.21	3.1 ± 0.25	1.9 ± 0.16
Nagoya, AICHI	7.06	1.05	1.47	0.8 ± 0.22	0.8 ± 0.21	5.0 ± 0.29	3.4 ± 0.20
Osaka, OSAKA	7.35	1.09	1.57	0.9 ± 0.20	0.8 ± 0.18	8.9 ± 0.39	5.7 ± 0.25
Wakayama, WAKAYAMA	7.04	1.06	1.48	1.4 ± 0.22	1.3 ± 0.21	2.8 ± 0.23	1.9 ± 0.15
Yonago, TOTTORI	6.83	0.971	1.36	0.6 ± 0.24	0.7 ± 0.25	4.2 ± 0.29	3.1 ± 0.21
Okayama, OKAYAMA	7.03	1.06	1.55	1.0 ± 0.23	0.9 ± 0.22	12 ± 0.4	7.7 ± 0.28
Yamaguchi, YAMAGUCHI	7.17	1.05	1.57	1.3 ± 0.23	1.3 ± 0.22	4.0 ± 0.29	2.6 ± 0.18
Matsuyama, EHIME	7.51	1.12	1.57	0.4 ± 0.24	0.3 ± 0.22	2.2 ± 0.27	1.4 ± 0.17
Kochi, KOCHI	7.29	1.07	1.58	1.7 ± 0.25	1.6 ± 0.23	54 ± 0.9	34 ± 0.6
Chikushino, FUKUOKA	7.38	1.10	1.60	0.9 ± 0.26	0.8 ± 0.24	8.1 ± 0.38	5.1 ± 0.24
Nagasaki, NAGASAKI	6.67	1.03	1.49	1.6 ± 0.72	1.5 ± 0.70	4.2 ± 0.59	2.8 ± 0.40
Kagoshima, KAGOSHIMA	7.16	1.11	1.57	1.2 ± 0.24	1.0 ± 0.22	7.4 ± 0.36	4.7 ± 0.23
Yonagusuku-mura, OKINAWA	7.08	1.09	1.55	0.6 ± 0.20	0.6 ± 0.19	1.8 ± 0.22	1.2 ± 0.14
September, 1986							
Sendai, MIYAGI	7.48	1.15	1.67	0.8 ± 0.21	0.7 ± 0.18	6.8 ± 0.35	4.1 ± 0.21
Fukushima, FUKUSHIMA	7.27	1.07	1.52	1.5 ± 0.26	1.4 ± 0.24	11 ± 0.5	7.3 ± 0.32
Matsue, SHIMANE	6.78	1.08	1.47	1.0 ± 0.23	1.0 ± 0.21	6.7 ± 0.34	4.6 ± 0.23
October, 1986							
Fukushima, FUKUSHIMA	7.32	1.12	1.51	1.4 ± 0.22	1.2 ± 0.19	5.3 ± 0.29	3.5 ± 0.19
Kyoto, KYOTO	7.28	1.12	1.54	0.7 ± 0.24	0.6 ± 0.22	4.6 ± 0.35	3.0 ± 0.22
December, 1986							
Akita, AKITA	6.40	0.977	1.32	1.2 ± 0.21	1.2 ± 0.22	5.3 ± 0.30	4.0 ± 0.22

(3)-4 Strontium-90 and Cesium-137 in Milk(powderd milk)

-continued from NO. 77 of this publication-

Table (3)-4: Strontium-90 and Cesium-137 in Milk

Location	Component			⁹⁰ Sr		¹³⁷ Cs		
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.	
November, 1986								
Meiji	2.56	3.84	5.79	4.6 ± 0.48	1.2 ± 0.12	47 ± 1.0		8.1 ± 0.17
Yukijirushi	2.55	3.49	5.30	3.1 ± 0.41	0.9 ± 0.12	20 ± 0.6		3.7 ± 0.12
Wakodo	2.66	4.23	4.89	3.6 ± 0.39	0.8 ± 0.09	19 ± 0.6		3.9 ± 0.13
Morinaga	2.47	3.33	5.09	5.7 ± 0.47	1.7 ± 0.14	43 ± 0.9		8.4 ± 0.18
*Morinaga	8.19	12.9	16.0	20 ± 1.0	1.5 ± 0.08	46 ± 1.2		2.8 ± 0.08
December, 1986								
*Meiji	8.11	12.8	14.8	32 ± 1.3	2.5 ± 0.10	480 ± 4		33 ± 0.3
*Skim milk								

(4)-1 Strontium-90 and Cesium-137 in Vegetables (producing districts)
(from May 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (4)-1: Strontium-90 and Cesium-137 in Vegetables

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Japanese radish)							
May, 1986							
Tahara-machi, AICHI	0.525	0.125	2.34	0.9 ± 0.34	7.0 ± 2.7	16. ± 0.6	6.6 ± 0.24
July, 1986							
Oota, SHIMANE	0.633	0.214	2.82	23 ± 0.7	110 ± 3.0	1.7 ± 0.16	0.6 ± 0.06
August, 1986							
Ishikari-machi, HOKKAIDO	0.416	0.197	1.47	6.6 ± 0.48	33 ± 2.4	3.1 ± 0.24	2.1 ± 0.17
October, 1986							
Saku, NAGANO	0.595	0.366	2.06	2.7 ± 0.33	7.5 ± 0.90	0.0 ± 0.10	0.0 ± 0.05
November, 1986							
Fukushima, FUKUSHIMA	0.509	0.248	2.14	2.1 ± 0.40	9.0 ± 1.6	0.0 ± 0.18	0.0 ± 0.08
Fukushima, FUKUSHIMA	0.471	0.240	1.35	0.5 ± 0.27	2.0 ± 1.1	0.1 ± 0.13	0.1 ± 0.10
Gotenba, SHIZUOKA	0.563	0.344	1.87	7.8 ± 0.40	23 ± 1.2	1.9 ± 0.17	1.0 ± 0.09
Akashi, HYOGO	0.533	0.238	2.02	3.8 ± 0.30	16 ± 1.3	8.5 ± 0.33	4.2 ± 0.16
December, 1986							
Kokufu-machi, TOTTORI	0.550	0.223	2.13	6.0 ± 0.47	27 ± 2.1	0.0 ± 0.16	0.0 ± 0.07
Hiroshima, HIROSHIMA	0.432	0.171	1.74	0.9 ± 0.35	5.0 ± 2.0	1.3 ± 0.22	0.8 ± 0.13
(Onion)							
July, 1986							
Kumatori-machi, OSAKA	0.409	0.161	1.58	1.6 ± 0.28	10 ± 1.7	1.3 ± 0.18	0.8 ± 0.11
(Cabbage)							
July, 1986							
Oota, SHIMANE	1.04	1.51	2.67	66 ± 1.4	44 ± 0.9	52. ± 1.0	20. ± 0.4
(Spinach)							
May, 1986							
Tahara-machi, AICHI	1.19	0.348	5.16	1.9 ± 0.34	5.5 ± 0.98	68. ± 1.1	13. ± 0.2
August, 1986							
Ishikari-machi, HOKKAIDO	2.27	0.552	8.33	6.1 ± 0.48	11 ± 0.9	0.9 ± 0.24	0.1 ± 0.03

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
October, 1986							
Saku, NAGANO	2.27	0.533	8.08	1.8 ± 0.34	3.4 ± 0.65	0.9 ± 0.18	0.1 ± 0.02
November, 1986							
Fukushima, FUKUSHIMA	1.27	0.992	4.07	3.0 ± 0.37	3.0 ± 0.37	1.6 ± 0.23	0.4 ± 0.06
Fukui, FUKUI	2.21	0.640	7.24	1.4 ± 0.27	2.2 ± 0.43	0.5 ± 0.14	0.1 ± 0.02
Gotenba, SHIZUOKA	1.51	1.01	4.47	18 ± 0.8	18 ± 0.8	4.2 ± 0.28	0.9 ± 0.06
Akashi, HYOGO	1.33	0.408	5.23	1.8 ± 0.30	4.5 ± 0.74	1.2 ± 0.20	0.2 ± 0.04
Kurayoshi, TOTTORI	1.72	1.08	4.78	5.4 ± 0.44	4.9 ± 0.41	14. ± 0.5	2.9 ± 0.12
Matsuyama, EHIME	1.58	0.592	5.88	0.2 ± 0.28	0.4 ± 0.47	3.8 ± 0.30	0.6 ± 0.05
December, 1986							
Hiroshima, HIROSHIMA	1.41	0.692	4.88	0.1 ± 0.29	0.1 ± 0.42	0.7 ± 0.21	0.2 ± 0.04

(4)-2 Strontium-90 and Cesium-137 in Vegetables (consuming districts)
(from May 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (4)-2: Strontium-90 and Cesium-137 in Vegetables

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Japanese radish)							
September, 1986							
Sendai, MIYAGI	0.423	0.243	0.959	41 ± 1.0	170 ± 4	12. ± 0.5	12. ± 0.5
October, 1986							
Akita, AKITA	0.537	0.263	2.05	6.6 ± 0.46	25 ± 1.8	4.4 ± 0.33	2.2 ± 0.16
Yamagata, YAMAGATA	0.570	0.195	1.88	17 ± 0.7	89 ± 3.8	0.1 ± 0.19	0.05 ± 0.10
November, 1986							
Shinjuku, TOKYO	0.513	0.218	2.03	5.7 ± 0.32	26 ± 1.5	0.2 ± 0.12	0.1 ± 0.06
Kanazawa, ISHIKAWA	0.419	0.173	1.32	3.8 ± 0.40	22 ± 2.3	0.0 ± 0.12	0.0 ± 0.09
Osaka, OSAKA	0.456	0.196	1.71	4.0 ± 0.42	20 ± 2.1	1.2 ± 0.21	0.7 ± 0.13
Okayama, OKAYAMA	0.525	0.308	1.82	1.7 ± 0.29	5.5 ± 0.93	0.5 ± 0.15	0.3 ± 0.08
Saga, SAGA	0.584	0.238	2.49	2.2 ± 0.27	9.0 ± 1.10	0.2 ± 0.11	0.1 ± 0.04
(Cabbage)							
October, 1986							
Akita, AKITA	0.595	0.401	1.53	8.6 ± 0.49	21 ± 1.2	1.6 ± 0.23	1.0 ± 0.15
(Spinach)							
May, 1986							
Sendai, MIYAGI	1.47	0.642	6.06	5.2 ± 0.42	8.1 ± 0.66	0.8 ± 0.15	0.1 ± 0.03
June, 1986							
Niigata, NIIGATA	1.24	0.392	5.67	1.1 ± 0.33	2.9 ± 0.84	1.1 ± 0.19	0.2 ± 0.03
October, 1986							
Yamagata, YAMAGATA	1.58	0.361	5.40	1.5 ± 0.31	4.3 ± 0.85	0.2 ± 0.19	0.04 ± 0.03
November, 1986							
Shinjuku, TOKYO	1.37	0.355	5.52	2.6 ± 0.37	7.4 ± 1.0	0.6 ± 0.22	0.1 ± 0.04
Osaka, OSAKA	1.41	0.608	4.29	1.7 ± 0.30	2.9 ± 0.49	0.3 ± 0.11	0.1 ± 0.03
Okayama, OKAYAMA	1.41	0.553	5.89	2.1 ± 0.36	3.8 ± 0.65	1.6 ± 0.23	0.3 ± 0.04
Matsuyama, EHIME	2.07	0.783	7.28	5.3 ± 0.46	6.8 ± 0.59	2.1 ± 0.26	0.3 ± 0.04
Saga, SAGA	1.72	0.757	6.89	2.8 ± 0.37	3.6 ± 0.49	0.1 ± 0.17	0.02 ± 0.02

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
December, 1986 Kanazawa, ISHIKAWA	1.57	0.427	6.77	1.2 ± 0.30	2.9 ± 0.71	0.3 ± 0.18	0.05 ± 0.03

(5) Strontium-90 and Cesium-137 in Sea Fish
(from Jul. 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (5): Strontium-90 and Cesium-137 in Sea Fish

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Hexagrammos otakii) August, 1986 Souma, FUKUSHIMA	1.93	2.64	4.35	0.1 ± 0.22	0.04 ± 0.08	7.5 ± 0.42	1.7 ± 0.10
November, 1986 Fukui, FUKUI	1.26	1.43	2.78	0.0 ± 0.19	0.0 ± 0.13	5.3 ± 0.33	1.9 ± 0.12
(Trachurus japonicus) August, 1986 Kobe, HYOGO	3.10	7.58	4.24	0.8 ± 0.27	0.1 ± 0.04	11 ± 0.5	2.7 ± 0.12
September, 1986 Wakayama, WAKAYAMA	3.19	7.52	3.46	0.5 ± 0.24	0.1 ± 0.03	5.1 ± 0.35	1.5 ± 0.10
November, 1986 Shizuoka, SHIZUOKA	3.36	7.74	2.63	0.3 ± 0.24	0.04 ± 0.03	0.2 ± 0.13	0.1 ± 0.05
December, 1986 Odawara, KANAGAWA	4.00	9.81	3.01	0.1 ± 0.26	0.01 ± 0.03	5.2 ± 0.35	1.7 ± 0.12
(Sardinops melanosticta) September, 1986 Yamagata, YAMAGATA	2.49	6.44	2.55	0.6 ± 0.25	0.1 ± 0.04	6.4 ± 0.39	2.5 ± 0.15
December, 1986 Nagano, NAGANO	2.73	6.71	2.63	0.2 ± 0.27	0.03 ± 0.04	9.4 ± 0.44	3.6 ± 0.17
(Sebastiscus marmoratus) December, 1986 Hamada, SHIMANE	5.94	12.7	3.22	0.8 ± 0.31	0.1 ± 0.02	6.7 ± 0.43	2.1 ± 0.13
(Limanda herzensteini) November, 1986 Mutsu, AOMORI	1.25	0.720	3.49	0.1 ± 0.23	0.2 ± 0.32	6.7 ± 0.36	1.9 ± 0.10
(Sillago sihama) September, 1986 Minamichita-machi, AICHI	3.72	10.1	3.66	0.9 ± 0.26	0.1 ± 0.03	5.4 ± 0.34	1.5 ± 0.09
(Oncorhynchus keta) October, 1986 Urakawa-machi, HOKKAIDO	1.42	0.865	3.90	0.2 ± 0.24	0.3 ± 0.28	8.8 ± 0.43	2.3 ± 0.11

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Scomber japonicus) August, 1986 Matsuyama, EHIME	1.30	0.351	4.31	0.6 ± 0.29	1.7 ± 0.81	11 ± 0.5	2.6 ± 0.11
November, 1986 Osaka, OSAKA	1.04	0.105	2.99	0.3 ± 0.28	3 ± 2.7	15 ± 0.6	5.0 ± 0.19
(Chrysophrys major) JULY, 1986 Fukuoka, FUKUOKA	1.28	0.232	4.46	0.0 ± 0.25	0.0 ± 1.1	7.4 ± 0.39	1.7 ± 0.09
September, 1986 Oga, AKITA	5.51	16.4	4.43	1.2 ± 0.28	0.1 ± 0.02	15 ± 0.6	3.4 ± 0.13
(Seriola quinqueradiata) November, 1986 Togi-machi, ISHIKAWA	1.37	0.855	3.93	0.1 ± 0.51	0.1 ± 0.59	8.3 ± 0.65	2.1 ± 0.16
(Mugil cephalus) August, 1986 Morodomi-machi, SAGA	1.30	0.593	3.98	0.3 ± 0.22	0.5 ± 0.36	4.7 ± 0.30	1.2 ± 0.07
November, 1986 Ushimado-machi, OKAYAMA	1.58	0.928	4.64	0.2 ± 0.27	0.2 ± 0.29	8.0 ± 0.41	1.7 ± 0.09
(Limanda yokohamae) November, 1986 Niigata, NIIGATA	1.51	1.31	3.67	0.0 ± 0.27	0.0 ± 0.21	5.1 ± 0.35	1.4 ± 0.10
(Decapterus muroadsi) September, 1986 Miyake-Island, TOKYO	1.35	1.54	3.32	0.7 ± 0.25	0.5 ± 0.16	5.6 ± 0.35	1.7 ± 0.10

Sea Fish

Japanese name	English name	Scientific name
Ainame	Greenling	Hexagrammos otakii
Aji	Horse mackerel	Trachurus japonicus
Iwashi	Sardine	Sardinops melanosticta
Kasago	Scorpion-fish	Sebastes marmoratus
Karei	Flatfish	Limanda herzensteini
Kisu	Sillago	Sillago sihama
Sake	Salmon	Oncorhynchus keta
Saba	Common mackerel	Scomber japonicus
Tai	Sea bream	Chrysophrys major
Fukuragi	Yellow-tail	Seriola quinqueradiata
Bora	Gray mullet	Mugil cephalus
Makogarei	Flatfish masbled sole	Limanda yokohamae
Muroaji	Horse-scad mackerel	Decapterus muroadsi

(6) Strontium-90 and Cesium-137 in Freshwater Fish
(from Jul. 1986 to Dec. 1986)

-continued from NO. 77 of this publication-

Table (6): Strontium-90 and Cesium-137 in Freshwater Fish

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Cyprinus carpio)							
August, 1986							
AKita, AKITA	3.37	10.1	2.92	180 ± 2	17 ± 0.20	31 ± 0.8	10 ± 0.3
September, 1986							
Fukushima, FUKUSHIMA	3.32	9.44	3.40	57 ± 1.2	6.1 ± 0.13	6.7 ± 0.40	2.0 ± 0.12
November, 1986							
Shobara, HIROSHIMA	0.993	0.287	3.19	1.2 ± 0.34	4.0 ± 1.2	7.6 ± 0.43	2.4 ± 0.13
(Carassius auratus)							
JULY, 1986							
Barato-lake, HOKKAIDO	4.65	14.5	3.73	31 ± 0.9	2.1 ± 0.07	11 ± 0.5	3.0 ± 0.14
November, 1986							
Toyaganata, NIIGATA	1.26	1.05	3.58	4.4 ± 0.47	4.2 ± 0.45	27 ± 0.8	7.6 ± 0.21
Mikata-lake, FUKUI	2.24	5.11	3.17	22 ± 0.8	4.4 ± 0.17	1.2 ± 0.21	0.4 ± 0.07
December, 1986							
Uji, KYOTO	5.17	15.5	3.02	53 ± 1.4	3.4 ± 0.09	12 ± 0.5	3.9 ± 0.17
(Hypomesus transpacificus nipponensis)							
December, 1986							
Suwa-lake, NAGANO	2.39	5.40	2.71	3.6 ± 0.43	0.7 ± 0.08	9.8 ± 0.47	3.6 ± 0.17

Freshwater Fish

Japanese name	English name	Scientific name
Koi	Carp	Cyprinus carpio
Funa	A crucian carp	Carassius auratus
Wakasagi	Pond-smelt	Hypomesus transpacificus nipponensis

(7) Strontium-90 and Cesium-137 in Shellfish
(from May 1986 to Nov. 1986)

-continued from NO. 77 of this publication-

Table (7): Strontium-90 and Cesium-137 in Shellfish

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(<i>Venerupis phillipinarum</i>) May, 1986 Takaki-machi, NAGASAKI	2.35	1.82	4.06	0.6 ± 0.69	0.3 ± 0.38	1.8 ± 0.56	0.5 ± 0.14
(<i>Saxidomus purpuratus</i>) September, 1986 Minamichita-machi, AICHI	2.17	0.983	2.65	0.0 ± 0.38	0.0 ± 0.38	2.1 ± 0.34	0.8 ± 0.13
(<i>Turbo cornutus</i>) JULY, 1986 Sakata, YAMAGATA	2.47	1.88	2.65	0.5 ± 0.23	0.2 ± 0.12	4.9 ± 0.35	1.8 ± 0.13
(<i>Pecten Yessoensis</i>) November, 1986 Mutsu, AOMORI	1.47	0.253	2.81	0.0 ± 0.23	0.0 ± 0.90	3.0 ± 0.24	1.1 ± 0.09

Shellfish

Japanese name	English name	Scientific name
Asari	Short-necked clam	<i>Venerupis phillipinarum</i>
Ohasari		<i>Saxidomus purpuratus</i>
Sazae	Wreath shell	<i>Turbo cornutus</i>
Hotategai	Scallop	<i>Pecten Yessoensis</i>

(8) Strontium-90 and Cesium-137 in Seaweeds
(Jun. 1986)

-continued from NO. 77 of this publication-

Table (8): Strontium-90 and Cesium-137 in Seaweeds

Location	Component			⁹⁰ Sr		¹³⁷ Cs	
	Ash(%)	Ca(g/Kg)	K(g/Kg)	pCi/Kg	S.U.	pCi/Kg	C.U.
(Sargassum fulvellum) June, 1986 Fukaura-machi, AOMORI	3.59	2.09	7.76	3.4 ± 0.35	1.6 ± 0.17	6.8 ± 0.39	0.9 ± 0.05

Seaweeds

Japanese name	English name	Scientific name
Hondawara	Gulfweed	Sargassum fulvellum

*** Total Diet ***

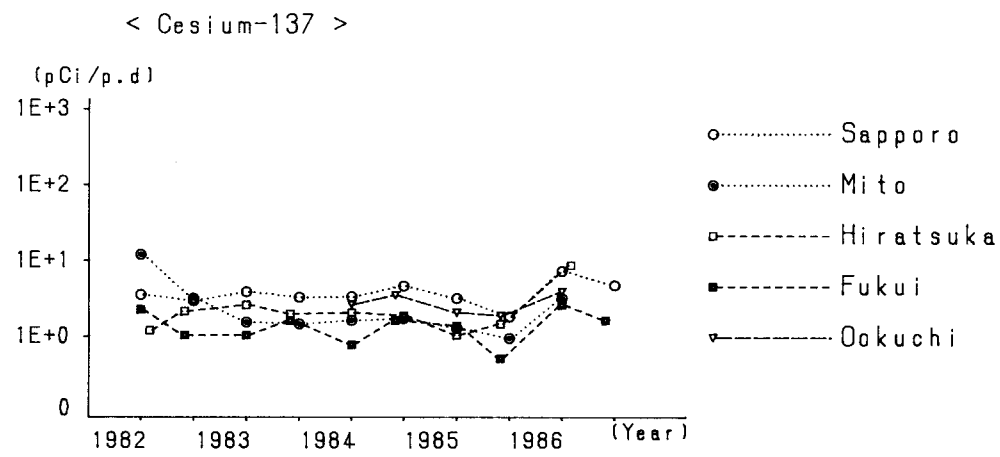
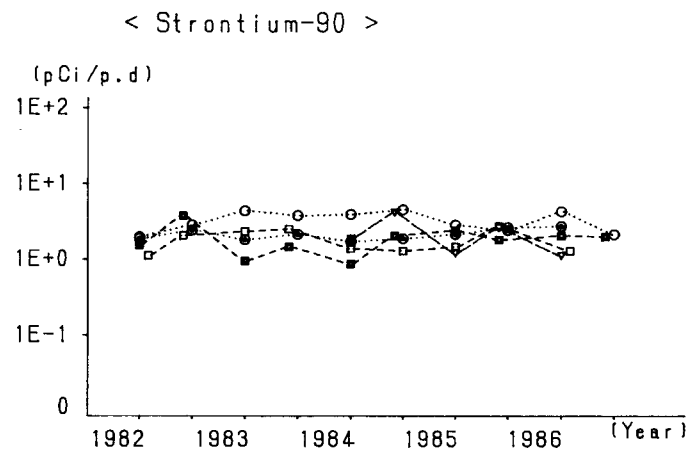


Fig. 1

* * * Rice (producing districts) * * *

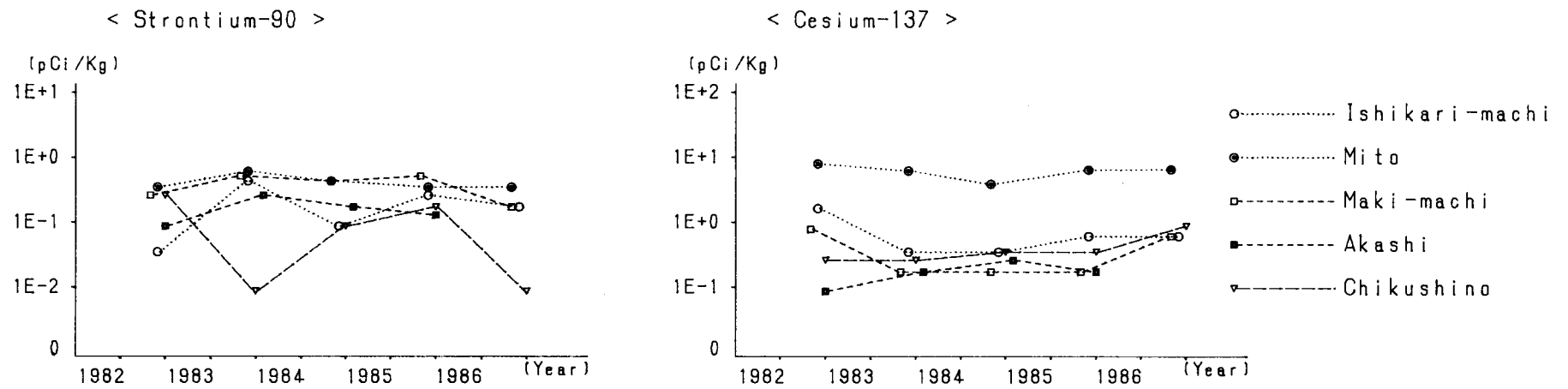


Fig. 2-1

* * * Rice (consuming districts) * * *

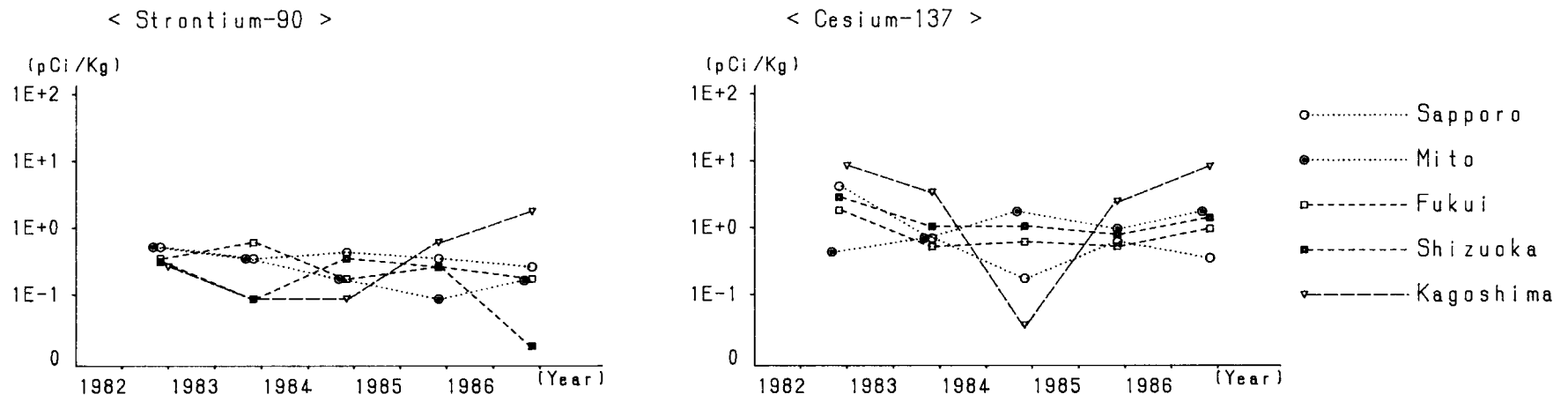


Fig. 2-2

* * * Milk (producing districts for domestic program) * * *

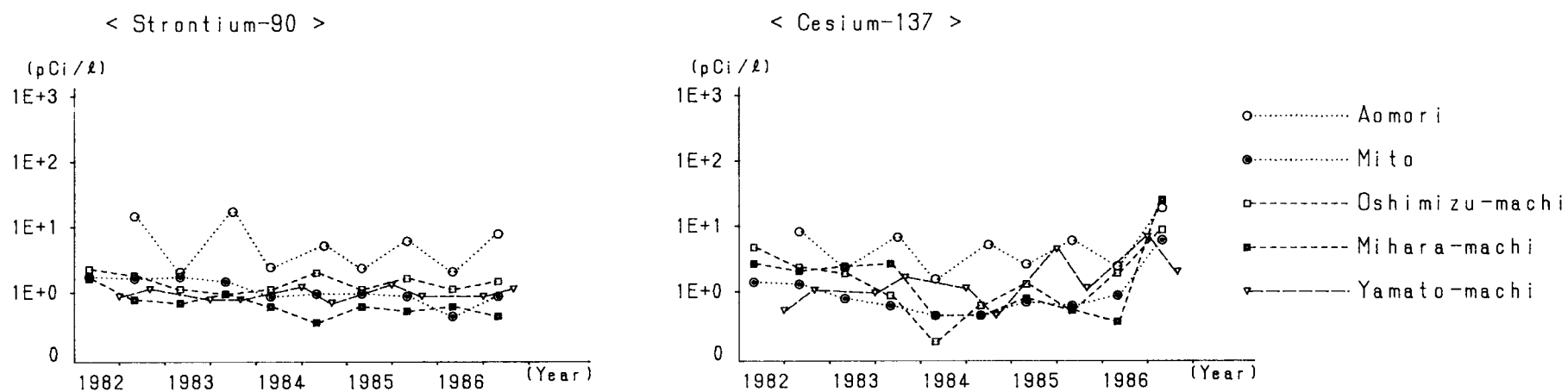


Fig. 3-1

* * * Milk (producing districts for WHO program) * * *

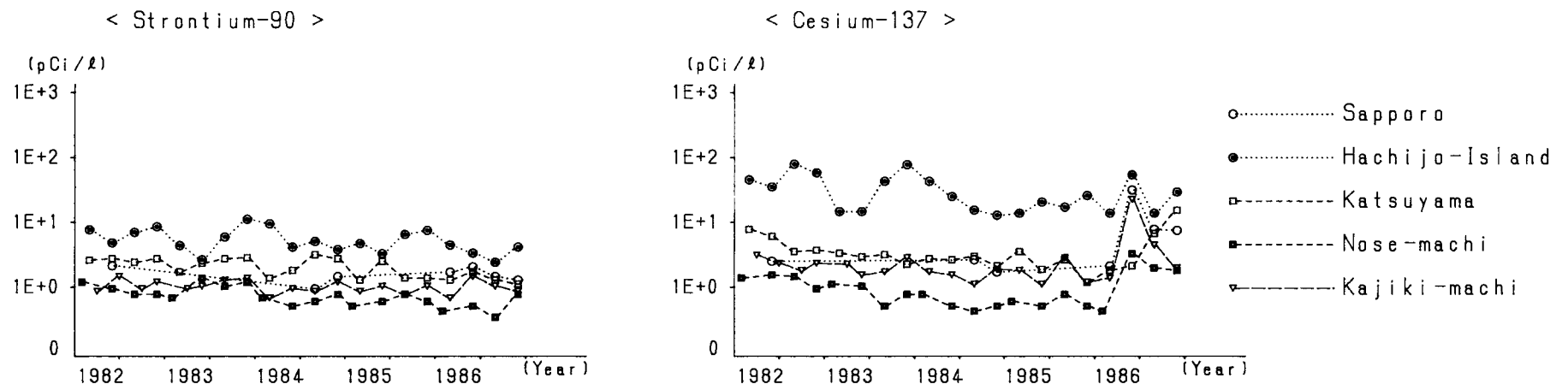


Fig. 3-2

* * * Milk (consuming districts) * * *

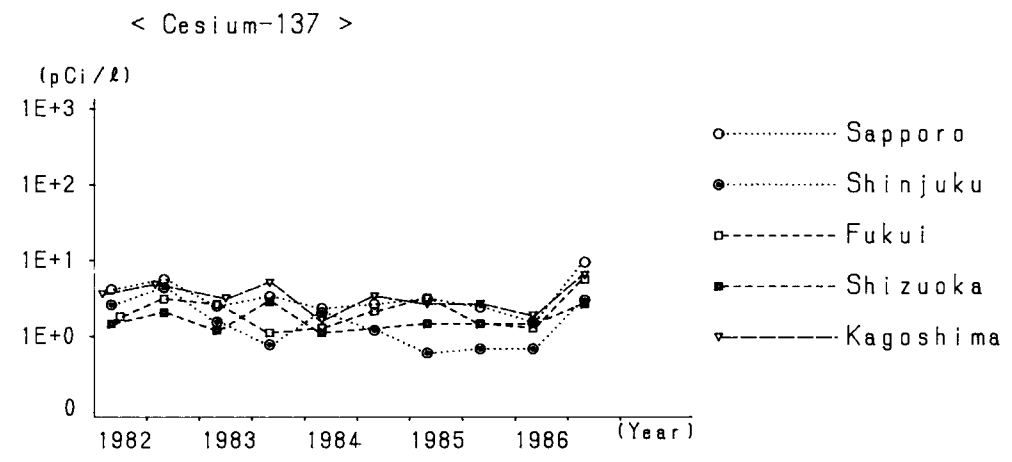
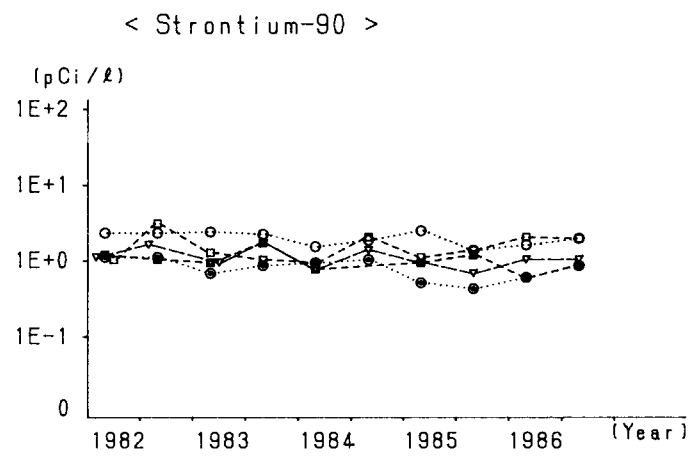


Fig. 3-3

*** Powdered Milk ***

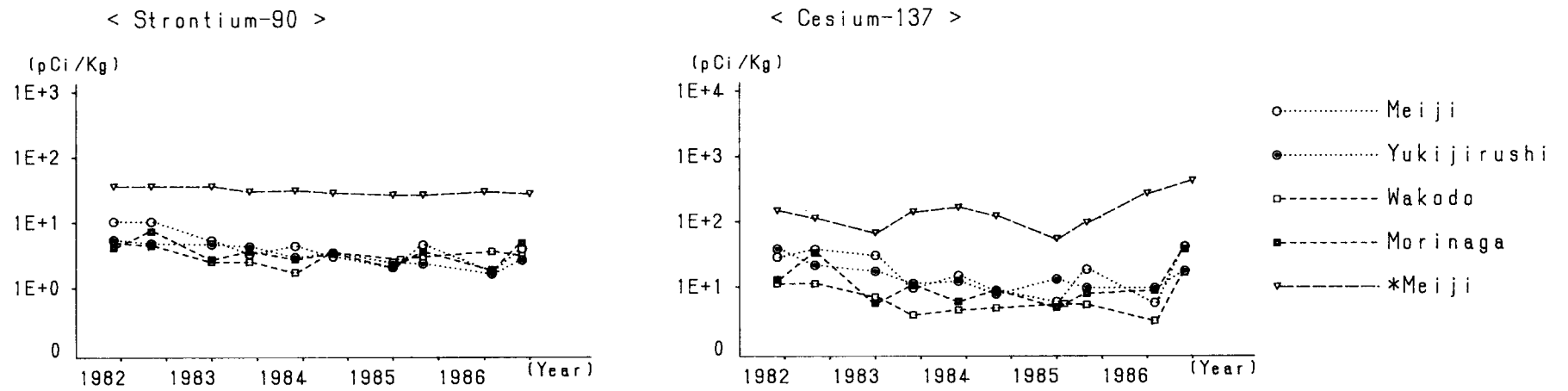


Fig.3-4

* * * Vegetables (producing districts) * * *
 (Japanese radish)

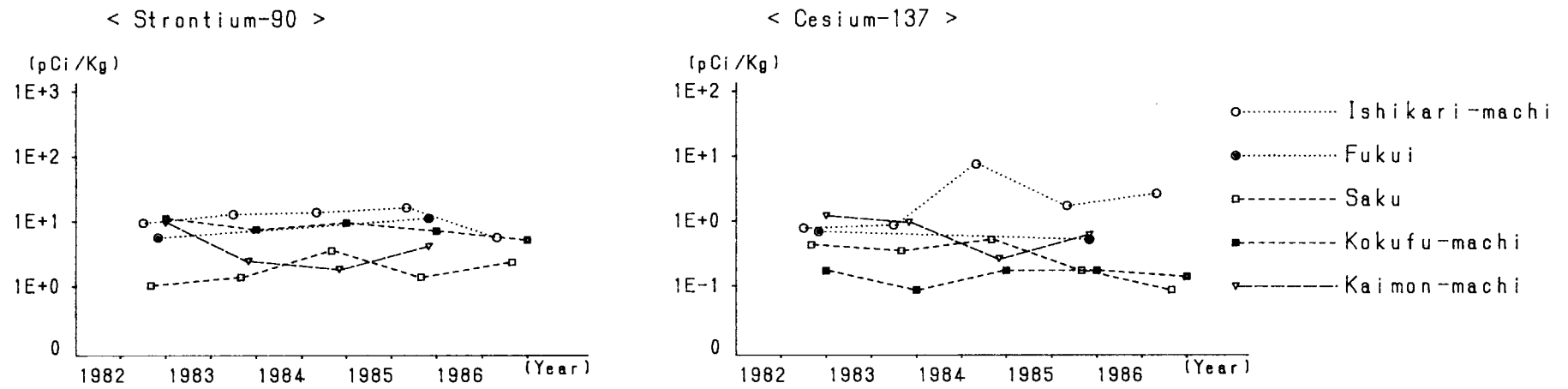


Fig. 4-1

*** Vegetables (consuming districts) ***
[Japanese radish]

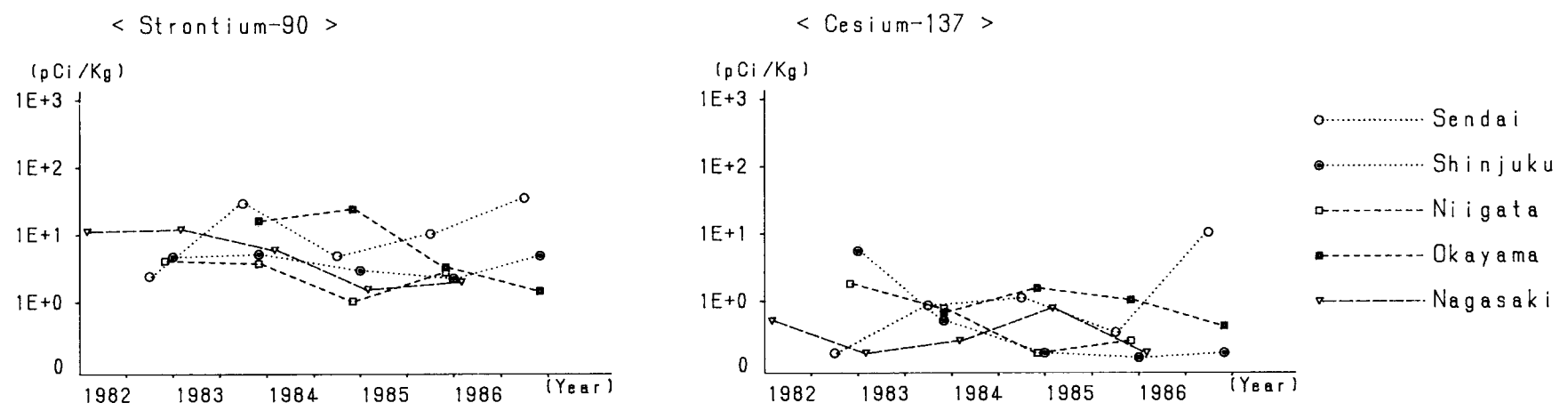


Fig. 4-2

*** Sea Fish ***

[Trachurus japonicus]

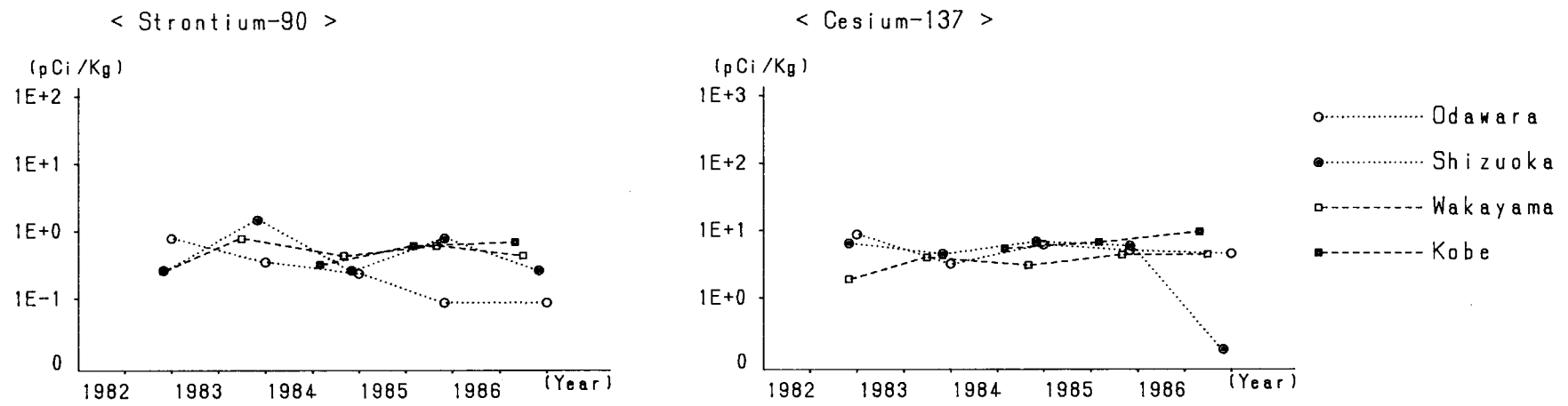


Fig.5

*** Freshwater Fish ***

[Carassius auratus]

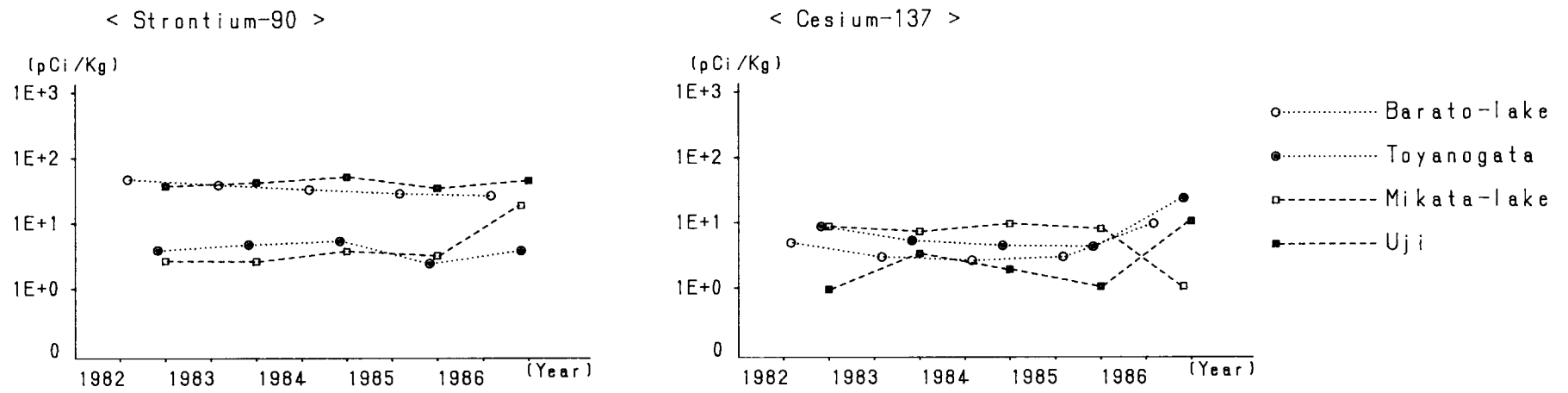


Fig. 6

*** Shellfish ***

(Turbo cornutus)

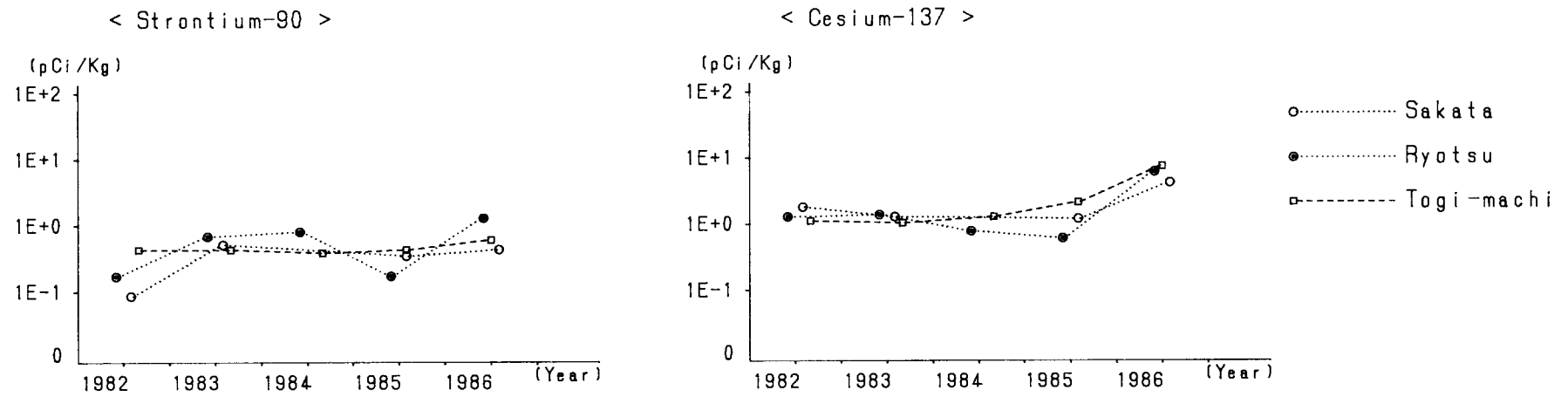


Fig.7

*** Seaweeds ***

[Undaria pinnatifida]

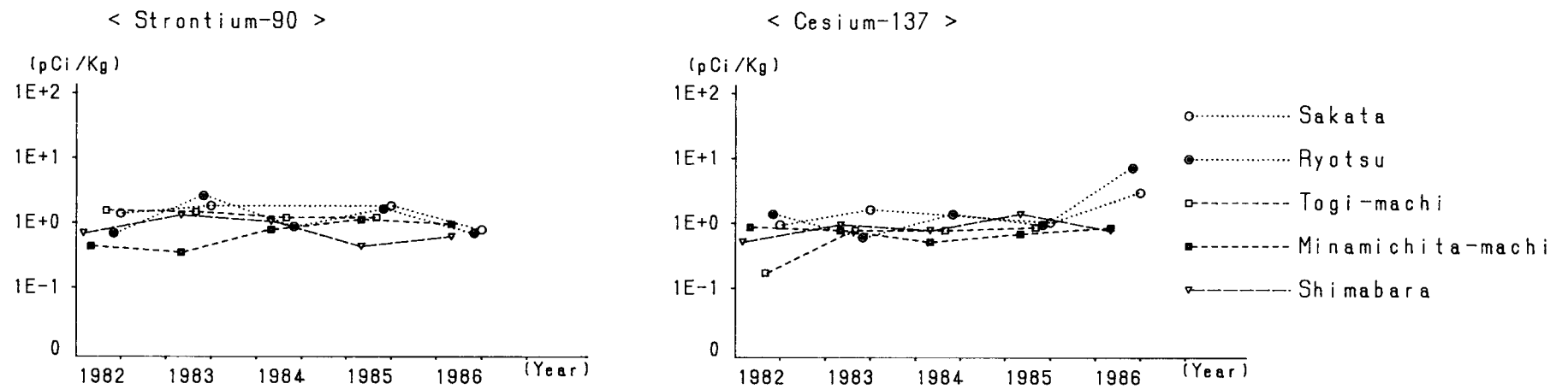
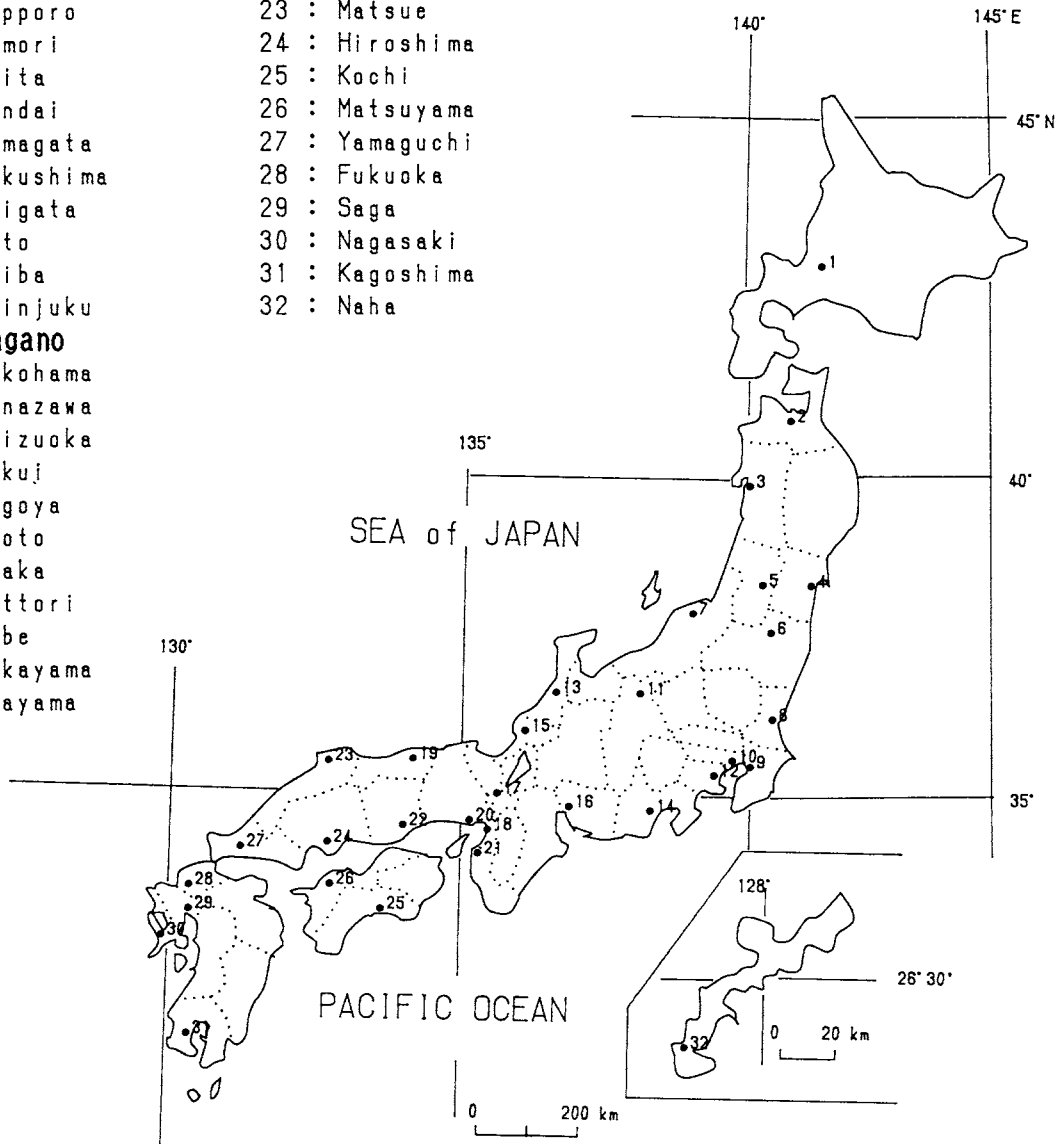


Fig.8

** Sampling Locations in Japan **

- | | |
|--------------------|----------------|
| 1 : Sapporo | 23 : Matsue |
| 2 : Aomori | 24 : Hiroshima |
| 3 : Akita | 25 : Kochi |
| 4 : Sendai | 26 : Matsuyama |
| 5 : Yamagata | 27 : Yamaguchi |
| 6 : Fukushima | 28 : Fukuoka |
| 7 : Niigata | 29 : Saga |
| 8 : Mito | 30 : Nagasaki |
| 9 : Chiba | 31 : Kagoshima |
| 10 : Shinjuku | 32 : Naha |
| 11 : Nagano | |
| 12 : Yokohama | |
| 13 : Kanazawa | |
| 14 : Shizuoka | |
| 15 : Fukuji | |
| 16 : Nagoya | |
| 17 : Kyoto | |
| 18 : Osaka | |
| 19 : Tottori | |
| 20 : Kobe | |
| 21 : Wakayama | |
| 22 : Okayama | |



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